

A "shell-hole flora" as a result of the World War

WALTER SCHWARZ

Who can ever forget the impression of senselessly destroyed life in the Argonne forests? For long stretches there were standing only tree stumps splintered by shells. Here and there some little green leaf showed itself. One could not get rid of the sad impression created by a pine-wood destroyed by poison gas, where the needles, brown and dry, hung on the branches. But scarcely were the ruined woods out of the direct fire zone, than a quite novel kind of flora suddenly sprang up. Here grew the delicate red blossoms of the Rosebay (*Epilobium angustifolium*) the tiny yellow heads of the Groundsel (*Senecio sylvaticus*) and other sun loving plants which are ordinarily only found in places where the trees have been felled. Here they got the upperhand, as the shade giving tree tops had disappeared. Even the deep shell-holes, soon after their formation, became the home of a new plant world. Splendid green algae flourished in the water collected in the bottoms. The sides immediately above the water surface were covered with moss. Higher up towards the edges flowering plants appeared. The conspicuous thing about these plants was that they were not previously found in the immediate neighbourhood. A plant society peculiar to these holes had been formed, a shell-hole flora. The conditions of life for the plants in the holes were quite different from those outside. Here there was greater moisture and changed light conditions. Only such plants could develop as were adapted to the new conditions. A natural selection in miniature had taken place. Even inside a single hole differences in colonization showed themselves. The side exposed to the morning sun was overgrown with plants different from those on the flank enjoying the afternoon sun.

Particularly interesting were the conditions where arable land had been ploughed through by shells. After the fighting zone had shifted, a new vegetation cover developed. Then the superiority of the wild flowers over those cultivated by man with so much care, showed itself. Everything was overgrown with magnificent red poppy, with luxuriant white Chamomile (*Matricaria inodora* and *M. discoides*) and red thistle (*Cirsium arvense*). Only here and there could there be found traces of the

former cultivated plants—a few stalks of rye, wheat and oats. Free nature was at work winning back from man territory taken from her.

At the Russian front an additional factor presented itself: the bringing in of plants foreign to the territory before the war. (For the exact study of this peculiarity we have to thank the naturalist Kupffer of Riga.) There, in the neighbourhood of the former Russian camps and places where there had been enclosures for horses were to be found a large number of plants whose home is in the southern steppes of Russia: the beautiful Oriental Larkspur (*Delphinium orientale*), the catchfly (*Silene Otites*) and many others. How did these growths come to the Baltic? The troops got the fodder for their horses from the interior of Russia. Numerous seeds of weeds were brought along and thrown away as refuse, or fell in the unloading. They then sprang up. In most cases they did not appear in succeeding years, as, in the unaccustomed climate, the seeds did not ripen. Conspicuous also was the quantity of sunflower appearing in the vicinity of the Russian positions. The sunflower is grown only occasionally in gardens in the Baltic provinces. It is not found wild or in extensive culture at all. In order to explain its appearance during the war, it is only necessary to bear in mind the habit of most Russians of chewing sunflower seeds. The soldiers always had their pockets full of them. How often it must have happened that seeds fell out and germinated. The red poppy, also not at home in Baltic regions, was brought thither, but this time by German soldiers, who everywhere in front of their blockhouses dug little gardens and ornamented their temporary homes with flowers. Among other growths foreign to the land they cultivated poppies, which spread from the gardens and became wild.

These are only a few examples. One could observe similar phenomena in many other cases. But one thing had proved itself everywhere: the creatures of nature can fight together to the point of mutual destruction, but nature herself is always creative, building up unceasingly.

GERMAN UNIVERSITY OF PRAGUE